ABSTRACT

Wood products, specifically wood commonly used in construction including dimension lumber, pressure treated pine, composite wood materials such as plywood, particle board, and wafer board, and samples of paper and fabric were variously treated with concentrations of sodium silicate ($Na_2O{\cdot}SiO_2$) also known as water glass. Cellulosic materials including dimension lumber, plywood, particle board, wafer board, paper, and fabric were treated with sodium silicate (Na2O.SiO2) in concentrations ranging from 400 - 0.04 g Na2O.SiO2/kg water. To overcome the disadvantages of sodium silicate, sodium silicate treated samples were further treated to convert the water soluble sodium silicate to a water insoluble form, thereby overcoming the disadvantages of water solubility. and rendering the material effective for internal and external uses. Although treated sodium silicate samples are composed of the same elements in similar proportions, as the untreated sodium silicate samples, the water solubility of the treated and untreated substances is very different..